Weather and Climate

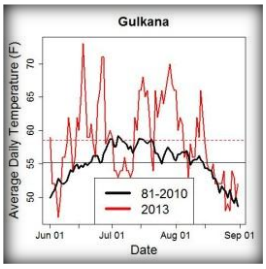
Wrangell – St. Elias Summer 2013 Weather Summary

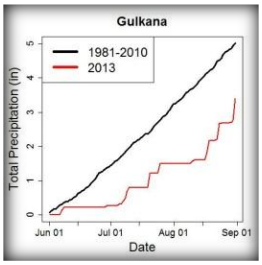
Was Summer 2013 Normal?

Both Gulkana and Yakutat were warmer and drier than normal this summer. In Gulkana, the month of June was +5.0° F warmer than normal and tied 2004 for the driest June on record. Daily high temperature records were broken in Yakutat on 6/15 (74°), 6/16 (85°), 6/17 (74°), and 6/24 (74°). Temperatures remained above normal for July and August. Both Gulkana and Yakutat only had about 70% of normal precipitation for the summer.

In Gulkana, June was 5° F warmer than normal and very dry. This June tied 2004 for the driest on record with only 19% of normal precipitation. Warm and dry conditions persisted into July where the monthly average temperature was 2.8° F above average and rainfall was only 68% of normal. The high temperature of 84° F on July 30 tied the record set in 1953. The first half of August remained dry, but multiple rain events in the latter part of the month brought the monthly rainfall total to 1.90 inches – just above normal. All three summer months showed above average temperatures and the season average was 3.3° F warmer than normal.

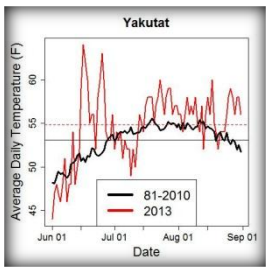
Gulkana Temperature and Precipitation (red) compared to Normal (black).

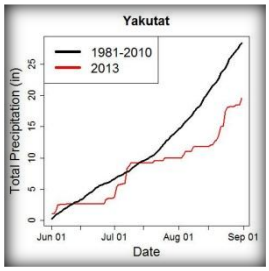




In Yakutat, all three summer months were warmer and drier than normal. The average temperature for the season was 1.9° F warmer than normal, and 28.3 inches of rain fell compared to a normal summer total of 37.1 inches. June was 2.6° F warmer than normal and daily maximum temperature records were broken on June 15, 16, 17, and 24. Only eight days had measurable precipitation recorded for the month. July temperatures were just above normal at 55.2° F. Precipitation was only 83% of normal and more than ¾ of the total rainfall for the month came in two events: July 1-3 and July 7-9. 2.46 inches of rainfall on the 7th breaking the old record of 1.91" from 1998. The average temperature for August was 56.1° F (2.3° F warmer than normal), and a total of 9.55 inches of rain fell compared to the normal total of 14.1 inches.

Yakutat Temperature and Precipitation (red) compared to Normal (black).





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Gulkana Weather Records:

Climate Normal Period 1981 – 2010
Climate Record Period 1949 – 2013

Temperature

Gulkana Summer	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
June	59.4	54.4	**+5.0**	89 / June 25	30 / June 6
July	60.7	57.6	**+2.8**	84 / July 30	37 / July 11
August	55.7	53.5	**+2.2**	82 / Aug 13	28 / Aug 27

Summer Season Temperature Departure from Normal: +3.3°F

Precipitation

Gulkana Summer	Total Monthly Precip. (in)	1981-2010 Normal (inches)	Departure from Normal (in)	Greatest 24 –hr. total (inches / Date)	# Days with >=0.01 inches water
June	0.26*	1.40	**-1.14**	0.16 / June 7-8	3
July	1.23	1.81	**-0.58**	0.39 / July 20	9
August	1.90	1.80	**+0.1**	0.66 / Aug 30-31	12

Summer Season Departure from Normal: -1.62 inches
*Monthly precipitation total tied monthly record for driest June set in 2004.

Yakutat Weather Records:

Climate Normal Period 1981 – 2010
Climate Record Period 1949 – 2013

Temperature

Yakutat Summer	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
June	53.4	50.8	**+2.6**	81 / June 16	37 / June 8
July	55.2	54.3	**+0.9**	71 / July 23	40 / July 11
August	56.1	53.8	**+2.3**	68 / Aug 30	42 / Aug 13

Summer Season Temperature Departure from Normal: +1.9°F

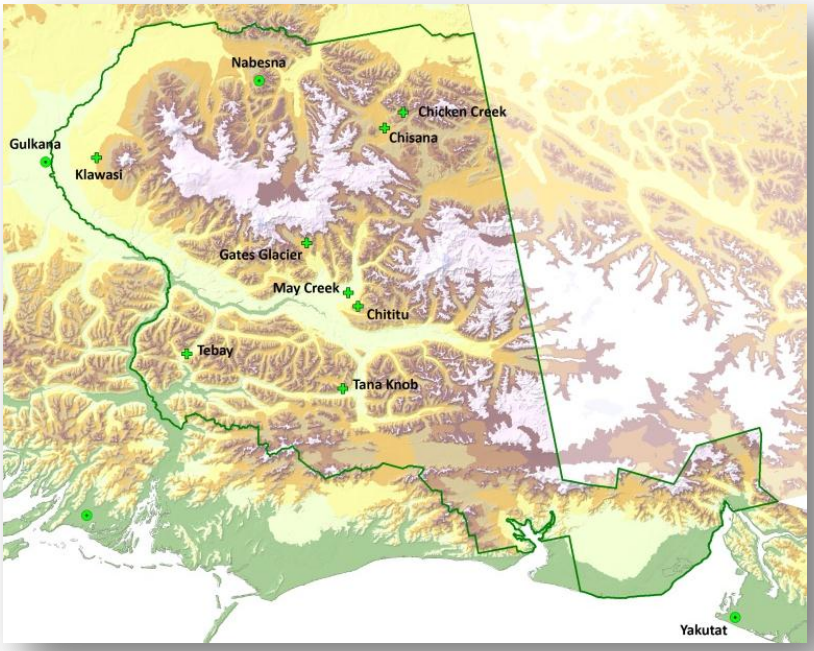
Precipitation

Yakutat Summer	Total Monthly Precip. (in)	1981-2010 Normal (inches)	Departure from Normal (in)	Greatest 24 –hr. total (inches / Date	# Days with >=0.01 inches water
June	3.49	6.39	**-2.90**	1.08 / June 1	8
July	6.51	7.88	**-1.37**	2.65 / July 7-8	14
August	9.55	14.07	**-4.52**	2.34 / Aug 23	19

Summer Season Departure from Normal: -8.8 inches

As part of the climate monitoring vital sign, additional NPS climate stations were installed in the park to complement the long-term records at Nabesna, Gulkana, and Yakutat. These additional sites provide critical data on a park-wide scale that help characterize the climate gradients and patterns affecting resources in Wrangell-St. Elias National Park and Preserve.

Wrangell – St. Elias Summer 2013 Weather Summary



Wrangell – St. Elias Remote Automated Weather Station (RAWS) summary – Summer 2013:

		Summer 2013						Peak
	Elev.	Average Temp (°F)			Precipitation (inches)*			Wind
Site	Ft.	June	July	Aug	June	July	Aug	(mph)
Chicken Creek	5240	48.1	48.7	48.5	4.62	4.5	1.68	37
Chisana	3318	54.6	55.5	52.2	3.12	1.75	1.2	24
Gates Glacier	4060	50.0	50.8	48.8	***	3.12	6.1	37
Klawasi	3100	--	57	53.6	--	1.69	--	m
May Creek	1600	59.5	59.4	54.7	0.6	1.1	1.8	36
Tebay	2000	51.7	54.1	51.1	0.38	1.3	2.76	13

* Preliminary data subject to revision – precipitation gages are not shielded and therefore totals may be lower than actual amounts.
** Chititu and Tana Knob sites are currently not transmitting real-time data and therefore are not summarized.
*** Persistent snow at Gates Glacier site through most of June did not allow measurements of liquid precipitation.

Interesting notes from RAWS stations:

- The high temperature of 69° F at Chicken Creek on June 26 was the highest June temperature recorded at the station since it was installed in August 2004.
- Summer was coldest at Chicken Creek, the high elevation site on the north side of the park and warmest at May Creek, the low elevation site in the valley between the Chugach and Wrangell mountain ranges.
- The prevalence of thunderstorms and microclimates is evident in summer precipitation data. Chicken Creek and Chisana both recorded over 3 inches of rainfall in the month of June, whereas other regions in and near WRST were much drier than normal. Gates Glacier site (12 miles north of McCarthy at 4060 feet) recorded over 6 inches of rain in August compared to only 1.8 inches of rainfall at May Creek (10 miles SE of McCarthy at 1600 feet elevation).

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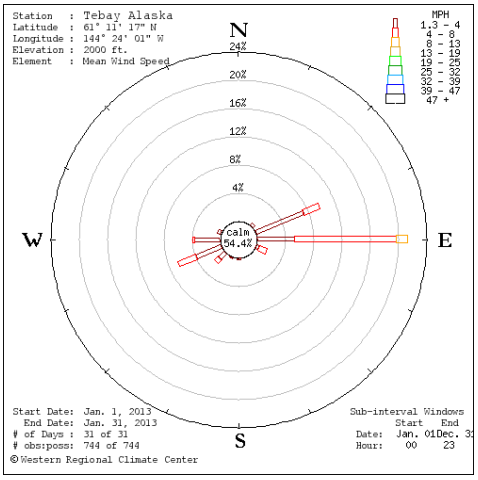
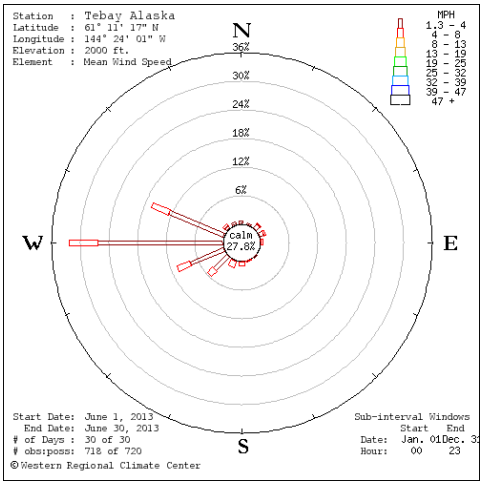
Wind speed and wind direction at Tebay in January 2013 (left) and June 2013 (right). The typical winter pattern shows that winds in the winter are typically out of the east. Calm conditions persisted throughout more than half of the month. In summer, the typical pattern shifts to a west wind.





Chicken Creek climate station; new camera at Gates Glacier that will store images on site; Chititu climate station

Connecting Further

- Central Alaska Network climate monitoring vital sign
- Access near real-time data from Western Regional Climate Center and MesoWest
- Check out the Oct-Nov-Dec weather outlook from the NOAA Climate Prediction Center
- Statewide summary of weather highlights in the latest Alaska Climate Dispatch from the Alaska Center for Climate Assessment and Policy
- Map of projected temperature and precipitation changes Wrangell - St. Elias National Park and Preserve.

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Please Note: The summarized data are preliminary and have not undergone final quality control. Therefore, these data are subject to revision.